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EXAMINER	
MOLINARI, MICHAEL J	

ART UNIT	PAPER NUMBER
2665	18

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/872,146	CHEN ET AL.	
	Examiner	Art Unit	
	Michael J Molinari	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-11,13-33 and 35-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-6, 8-11, 13-33, and 35-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Lines 8-9 of claim 35 recite limitations that have already been recited in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 35-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Surprenant et al. (U.S. Patent No. 6,266,341).

2. Referring to claim 35, Surprenant et al. disclose a network switch comprising: a backplane (TDM Bus, see Figure 3, #78); and a plurality of ingress interface cards (see Figure 3, #82) coupled to the backplane to receive multiple channels of network traffic from external

sources (see Figure 3, #23, #44, #58), to receive one or more channels of data according to a time division multiplexed (TDM) protocol (T-1, POT) and one or more channels of data according to a second protocol (Wireless, ATM), and to route the channels of data over the backplane using a single format (see column 8, lines 35-44, which describes that the data are transmitted in TDM frames) to one or more egress interface cards coupled to the backplane (see Figure 3, #82, #79).

3. Referring to claim 36, Surprenant et al. disclose that the second protocol comprises a network traffic protocol (ATM is a network protocol).

Referring to claim 37, Surprenant et al. disclose that the second protocol comprises an asynchronous transfer mode (ATM) protocol (see Figure 3, #82 and #79B).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3-5, 11, 13-20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Surprenant et al. (U.S. Patent No. 6,266,341) in view of Brady (U.S. Patent No. 6,226,287).

6. Referring to claim 1, Surprenant et al. disclose a network switch (office communications system) comprising a backplane (TDM Bus), a plurality of interface cards coupled to the backplane via an interface (see Fig. 3), the interface cards coupled to receive multiple channels of network traffic from external sources (such as POTS, T-1/PRI, ATM, etc., see Fig. 3), the

plurality of interface cards to receive one or more channels of data according to a TDM protocol (POTS or T-1/PRI) or one or more channels of data according to a second protocol (ATM), the interface cards to route the channels of data over the backplane using a single format (see column 8, lines 35-44, which describes that the data are transmitted in TDM frames) to one or more predetermined interface cards (such as ATM card #82 to ATM controller card #79B in Fig. 3) coupled to the backplane within the network switch (see Figure 3). However, Surprenant et al. differ from claim 1 in that they fail to disclose the use of multiple protocols on a single card. However, the use of multiple protocols on a single card is well known in the art. For example, Brady teaches the use of multiple protocols on a single card (see column 3, lines 50-56), which has the advantage of reducing cost. One skilled in the art would have recognized the advantage of using multiple protocols on a single card as taught by Brady. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of multiple protocols on a single interface card as taught by Brady into the office communications system of Surprenant et al. to achieve the advantage of reducing cost.

7. Referring to claim 3, Surprenant et al. disclose that the second protocol is a network traffic protocol. Specifically, they disclose that it is ATM, which is a network traffic protocol (see Fig. 3 and see column 8, lines 59-67 and column 9, lines 1-3).

8. Referring to claim 4, Surprenant et al. disclose that the second protocol is ATM (see Fig. 3 and see column 8, lines 59-67 and column 9, lines 1-3).

9. Referring to claim 5, Surprenant et al. fail to expressly disclose that the second protocol comprises Internet Protocol (IP). However, Surprenant et al. do disclose the use of "other WAN-type network services as determined by the particular office work environment" (see column 9,

lines 1-3). IP is an extremely common WAN-type network service in many office work environments. A person with skill in the art would have recognized this. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of IP as a network traffic protocol in the office communications system of Surprenant et al. to achieve the advantage of making it compatible with a greater number of office work environments.

10. Referring to claim 11, Surprenant et al. disclose a method comprising receiving multiple channels of network traffic from external sources via a network interface (see Fig. 3, network interface not numbered) of an interface card (see Fig. 3, #82), wherein the multiple channels of network traffic to include one or more channels of data according to a time division multiplexed (TDM) protocol (such as POTS or T-1/PRI, see Fig. 3) or one or more channels of data according to a second protocol (such as ATM, see Fig. 3); converting the TDM data and the second protocol data to a predetermined format (see column 8, lines 32-58, which discloses that the Switch/MUX card requires multiplexing circuitry to access the bus by putting the data into TDM frames. Although Surprenant et al. do not explicitly disclose it, one skilled in the art would have recognized that it would have been obvious to provide all the cards connected to the TDM bus with such circuitry to enable each of them to communicate over the TDM bus); and routing the channels of data in the predetermined format (TDM frames, see column 8, lines 32-44) via a backplane (TDM Bus, see Fig. 3) connection (see Fig. 3, backplane connection not numbered) to one or more predetermined destinations (see column 8, lines 59-67 and column 9, lines 1-3). However, Surprenant et al. differ from claim 11 in that they fail to disclose the use of multiple protocols on a single card. However, the use of multiple protocols on a single card is

well known in the art. For example, Brady teaches the use of multiple protocols on a single card (see column 3, lines 50-56), which has the advantage of reducing cost. One skilled in the art would have recognized the advantage of using multiple protocols on a single card as taught by Brady. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of multiple protocols on a single interface card as taught by Brady into the office communications system of Surprenant et al. to achieve the advantage of reducing cost.

11. Referring to claim 13, Surprenant et al. disclose that the second protocol is a network traffic protocol. Specifically, they disclose that it is ATM, which is a network traffic protocol (see Fig. 3 and see column 8, lines 59-67 and column 9, lines 1-3).

12. Referring to claim 14, Surprenant et al. disclose that the second protocol is ATM (see Fig. 3 and see column 8, lines 59-67 and column 9, lines 1-3).

13. Referring to claim 15, Surprenant et al. fail to expressly disclose that the second protocol comprises Internet Protocol (IP). However, Surprenant et al. do disclose the use of "other WAN-type network services as determined by the particular office work environment" (see column 9, lines 1-3). IP is an extremely common WAN-type network service in many office work environments. A person with skill in the art would have recognized this. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of IP as a network traffic protocol in the office communications system of Surprenant et al. to achieve the advantage of making it compatible with a greater number of office work environments.

14. Referring to claim 16, Surprenant et al. disclose an apparatus (office communications system) comprising means for receiving multiple channels of network traffic from external sources via a network interface (see Fig. 3, network interface not numbered) of an interface card (see Fig. 3, #82), wherein the multiple channels of network traffic to include one or more channels of data according to a time division multiplexed (TDM) protocol (such as POTS or T-1/PRI, see Fig. 3) or one or more channels of data according to a second protocol (such as ATM, see Fig. 3); means for converting the TDM data and the second protocol data to a predetermined format (see column 8, lines 32-58, which discloses that the Switch/MUX card requires multiplexing circuitry to access the bus by putting the data into TDM frames. Although Surprenant et al. do not explicitly disclose it, one skilled in the art would have recognized that it would have been obvious to provide all the cards connected to the TDM bus with such circuitry to enable each of them to communicate over the TDM bus); and means for routing the channels of data in the predetermined format (TDM frames, see column 8, lines 32-44) via a backplane (TDM Bus) connection (see Fig. 3, backplane connection not numbered) to one or more predetermined destinations (see column 8, lines 59-67 and column 9, lines 1-3). However, Surprenant et al. differ from claim 11 in that they fail to disclose the use of multiple protocols on a single card. However, the use of multiple protocols on a single card is well known in the art. For example, Brady teaches the use of multiple protocols on a single card (see column 3, lines 50-56), which has the advantage of reducing cost. One skilled in the art would have recognized the advantage of using multiple protocols on a single card as taught by Brady. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to

incorporate the use of multiple protocols on a single interface card as taught by Brady into the office communications system of Surprenant et al. to achieve the advantage of reducing cost.

15. Referring to claim 17, Surprenant et al. disclose that the second protocol is a network traffic protocol. Specifically, they disclose that it is ATM, which is a network traffic protocol (see Fig. 3 and see column 8, lines 59-67 and column 9, lines 1-3).

16. Referring to claim 18, Surprenant et al. disclose that the second protocol is ATM (see Fig. 3 and see column 8, lines 59-67 and column 9, lines 1-3).

17. Referring to claim 19, Surprenant et al. fail to expressly disclose that the second protocol comprises Internet Protocol (IP). However, Surprenant et al. do disclose the use of "other WAN-type network services as determined by the particular office work environment" (see column 9, lines 1-3). IP is an extremely common WAN-type network service in many office work environments. A person with skill in the art would have recognized this. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of IP as a network traffic protocol in the office communications system of Surprenant et al. to achieve the advantage of making it compatible with a greater number of office work environments.

18. Referring to claim 20, Surprenant et al. disclose that one or more of the interface cards receives electrical signals to communicate the network traffic (see column 5, line 64, and note that Ethernet ports receive electrical signals to communicate network traffic).

19. Referring to claim 23, Surprenant et al. disclose that one or more of the interface cards receives electrical signals to communicate the network traffic (see column 5, line 64, and note that Ethernet ports receive electrical signals to communicate network traffic).

20. Claims 6, 8-10, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Surprenant et al. (U.S. Patent No. 6,266,341) in view of Brady (U.S. Patent No. 6,226,287), further in view of Degges et al. (U.S. Patent No. 5,953,329).

21. Referring to claim 6, Surprenant et al. disclose an interface card (see Fig. 3, #82) comprising a backplane interface (see Fig. 3, backplane interface is not numbered) to transmit and receive data over a backplane (TDM Bus, see Fig. 3) using a predetermined format (see column 8, lines 35-44, which describes that the data are transmitted in TDM frames); a network interface (see Fig. 3, network interface is not numbered) to transmit and receive multiple channels of network traffic from external sources, the multiple channels of network traffic to include one or more channels of data according to a time division multiplexed (TDM) protocol or one or more channels of data according to a second protocol; and conversion circuitry to convert the TDM data and the second protocol data to the predetermined format (see column 8, lines 32-58, which discloses that the Switch/MUX card requires multiplexing circuitry to access the bus. Although Surprenant et al. do not explicitly disclose it, one skilled in the art would have recognized that it would have been obvious to provide all the cards connected to the TDM bus with such circuitry to enable each of them to communicate over the TDM bus). Surprenant et al. differ from claim 6 in that they fail to disclose the use of multiple protocols on a single card. However, the use of multiple protocols on a single card is well known in the art. For example, Brady teaches the use of multiple protocols on a single card (see column 3, lines 50-56), which has the advantage of reducing cost. One skilled in the art would have recognized the advantage of using multiple protocols on a single card as taught by Brady. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the

use of multiple protocols on a single interface card as taught by Brady into the office communications system of Surprenant et al. to achieve the advantage of reducing cost. Surprenant et al. in view of Brady do not disclose the use of a time slot management circuit coupled between the backplane interface and the network interface, the time slot management circuit to route the channels of data over the backplane to one or more predetermined destinations. However, the use of time slot managers in TDM cards is well known in the art. For example, Degges et al. teach the use of a time slot manager on a T-1 card (see column 10, lines 20-30), which has the advantage of enabling the card to handle TDM traffic. One skilled in the art would have recognized the advantage of using a time slot manager in a TDM card as taught by Degges et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of a time slot manager as taught by Degges et al. into the invention of Surprenant et al. in view of Brady to achieve the advantage of enabling the card to handle TDM traffic.

22. Referring to claim 8, Surprenant et al. disclose that the second protocol is a network traffic protocol. Specifically, they disclose that it is ATM, which is a network traffic protocol (see Fig. 3 and see column 8, lines 59-67 and column 9, lines 1-3).

23. Referring to claim 9, Surprenant et al. disclose that the second protocol is ATM (see Fig. 3 and see column 8, lines 59-67 and column 9, lines 1-3).

24. Referring to claim 10, Surprenant et al. fail to expressly disclose that the second protocol comprises Internet Protocol (IP). However, Surprenant et al. do disclose the use of "other WAN-type network services as determined by the particular office work environment" (see column 9, lines 1-3). IP is an extremely common WAN-type network service in many office work

environments. A person with skill in the art would have recognized this. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of IP as a network traffic protocol in the office communications system of Surprenant et al. to achieve the advantage of making it compatible with a greater number of office work environments.

25. Referring to claim 26, Surprenant et al. disclose that the network interface (port) receives one or more channels of network traffic as electrical signals (see column 5, line 64, and note that Ethernet ports receive electrical signals to communicate network traffic).

26. Claims 21-22, 24-25, 29, and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Surprenant et al. (U.S. Patent No. 6,266,341) in view of Brady (U.S. Patent No. 6,226,287), further in view of DeNap et al. (U.S. Patent No. 6,407,997).

27. Referring to claim 21, Surprenant et al. in view of Brady fail to disclose that one or more of the interface cards receives optical signals to communicate the network traffic. However, the use of optical signals to communicate network traffic is well known in the art. For example, DeNap et al. teach the use of ATM/SONET with OC-3 (optical) interfaces which has the advantage of providing high-speed ATM interfaces. One skilled in the art would have recognized the advantage of using ATM/SONET with OC-3 interfaces as taught by DeNap et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of ATM/SONET with OC-3 interfaces as taught by DeNap et al. into the office communications system of Surprenant et al. in view of Brady to achieve the advantage of providing high-speed ATM interfaces.

28. Referring to claim 22, Surprenant et al. in view of Brady fail to disclose that the optical signals comprise SONET-framed data. However, the use of optical signals comprising SONET-framed data to communicate network traffic is well known in the art. For example, DeNap et al. teach the use of ATM/SONET with OC-3 (optical) interfaces which has the advantage of providing high-speed ATM interfaces. One skilled in the art would have recognized the advantage of using ATM/SONET with OC-3 interfaces as taught by DeNap et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of ATM/SONET with OC-3 interfaces as taught by DeNap et al. into the office communications system of Surprenant et al. in view of Brady to achieve the advantage of providing high-speed ATM interfaces.

29. Referring to claim 24, Surprenant et al. in view of Brady fail to disclose that one or more of the predetermined interface cards transmits optical signals. However, the use of optical signals to communicate network traffic is well known in the art. For example, DeNap et al. teach the use of ATM/SONET with OC-3 (optical) interfaces which has the advantage of providing high-speed ATM interfaces. One skilled in the art would have recognized the advantage of using ATM/SONET with OC-3 interfaces as taught by DeNap et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of ATM/SONET with OC-3 interfaces as taught by DeNap et al. into the office communications system of Surprenant et al. in view of Brady to achieve the advantage of providing high-speed ATM interfaces.

30. Referring to claim 25, Surprenant et al. in view of Brady fail to disclose that the optical signals comprise SONET-framed data. However, the use of optical signals comprising SONET-

framed data to communicate network traffic is well known in the art. For example, DeNap et al. teach the use of ATM/SONET with OC-3 (optical) interfaces, which has the advantage of providing high-speed ATM interfaces. One skilled in the art would have recognized the advantage of using ATM/SONET with OC-3 interfaces as taught by DeNap et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of ATM/SONET with OC-3 interfaces as taught by DeNap et al. into the office communications system of Surprenant et al. in view of Brady to achieve the advantage of providing high-speed ATM interfaces.

31. Referring to claim 29, Surprenant et al. in view of Brady teach the conversion of the received data to a TDM format for transmission over the backplane but fail to teach the conversion of the received data to an internal cell format for transmission over the backplane. However, conversion to an internal cell format for transmission over the backplane is well known in the art. For example, DeNap et al. teach conversion of received data to an internal cell format for transmission over the backplane (see column 6, lines 43-56) to achieve the advantage of improving utilization of the backplane. One skilled in the art would have recognized the advantage of converting received data to an internal cell format for transmission over the backplane as taught by DeNap et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the conversion of received data into an internal cell format for transmission over the backplane as taught by DeNap et al. into the office communications system of Surprenant et al. in view of Brady to achieve the advantage of improving the utilization of the backplane.

32. Referring to claim 31, Surprenant et al. in view of Brady teach the conversion of data according to a TDM protocol and data according to a second protocol to a TDM format for transmission over the backplane but fail to teach the conversion of the received data to an internal cell format for transmission over the backplane. However, conversion to an internal cell format for transmission over the backplane is well known in the art. For example, DeNap et al. teach conversion of received data to an internal cell format for transmission over the backplane (see column 6, lines 43-56) to achieve the advantage of improving utilization of the backplane. One skilled in the art would have recognized the advantage of converting received data to an internal cell format for transmission over the backplane as taught by DeNap et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the conversion of received data into an internal cell format for transmission over the backplane as taught by DeNap et al. into the office communications system of Surprenant et al. in view of Brady to achieve the advantage of improving the utilization of the backplane.

33. Referring to claim 32, Surprenant et al. in view of Brady teach the conversion of data according to a TDM protocol and data according to a second protocol to a TDM format for transmission over the backplane but fail to teach the conversion of the received data to an internal cell format for transmission over the backplane. However, conversion to an internal cell format for transmission over the backplane is well known in the art. For example, DeNap et al. teach conversion of received data to an internal cell format for transmission over the backplane (see column 6, lines 43-56) to achieve the advantage of improving utilization of the backplane. One skilled in the art would have recognized the advantage of converting received data to an internal cell format for transmission over the backplane as taught by DeNap et al. Therefore, it

would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the conversion of received data into an internal cell format for transmission over the backplane as taught by DeNap et al. into the office communications system of Surprenant et al. in view of Brady to achieve the advantage of improving the utilization of the backplane.

34. Claims 27-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Surprenant et al. (U.S. Patent No. 6,266,341) in view of Brady (U.S. Patent No. 6,226,287), further in view of Degges et al. (U.S. Patent No. 5,953,329), further in view of DeNap et al. (U.S. Patent No. 6,407,997).

35. Referring to claim 27, Surprenant et al. in view of Brady, further in view of Degges et al. fail to disclose that the network interface receives one or more channels of network traffic as optical signals. However, the use of optical signals to communicate network traffic is well known in the art. For example, DeNap et al. teach the use of ATM/SONET with OC-3 (optical) interfaces which has the advantage of providing high-speed ATM interfaces. One skilled in the art would have recognized the advantage of using ATM/SONET with OC-3 interfaces as taught by DeNap et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of ATM/SONET with OC-3 interfaces as taught by DeNap et al. into the office communications system of Surprenant et al. in view of Brady, further in view of Degges et al. to achieve the advantage of providing high-speed ATM interfaces.

36. Referring to claim 28, Surprenant et al. in view of Brady, further in view of Degges et al. fail to teach that the optical signals comprise SONET-framed data. However, the use of optical signals comprising SONET-framed data to communicate network traffic is well known in the art.

For example, DeNap et al. teach the use of ATM/SONET with OC-3 (optical) interfaces which has the advantage of providing high-speed ATM interfaces. One skilled in the art would have recognized the advantage of using ATM/SONET with OC-3 interfaces as taught by DeNap et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of ATM/SONET with OC-3 interfaces as taught by DeNap et al. into the office communications system of Surprenant et al. in view of Brady, further in view of Degges et al. to achieve the advantage of providing high-speed ATM interfaces.

37. Referring to claim 30, Surprenant et al. in view of Brady, further in view of Degges et al. teach the conversion of the received data to a TDM format for transmission over the backplane but fail to teach the conversion of the received data to an internal cell format for transmission over the backplane. However, conversion to an internal cell format for transmission over the backplane is well known in the art. For example, DeNap et al. teach conversion of received data to an internal cell format for transmission over the backplane (see column 6, lines 43-56) to achieve the advantage of improving utilization of the backplane. One skilled in the art would have recognized the advantage of converting received data to an internal cell format for transmission over the backplane as taught by DeNap et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the conversion of received data into an internal cell format for transmission over the backplane as taught by DeNap et al. into the office communications system of Surprenant et al. in view of Brady, further in view of Degges et al. to achieve the advantage of improving the utilization of the backplane.

38. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Surprenant et al. in view of Brady as applied to claim 1 above, and further in view of Swenson et al. (U.S. Patent No. 5,541,921).

39. Referring to claim 33, Suprenant et al. disclose the use of an interface for accessing the TDM bus such as that in U.S. Patent No. 5,541,921 to Swenson et al. (see column 8, lines 46-54). The invention of Swenson et al. teaches the use of a plurality of buffers (see Swenson et al., Fig. 6), which are coupled with each of the other interface cards across the TDM bus as shown in Fig. 3 of Surprenant et al.

40. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Surprenant et al. in view of Brady, further in view of Degges et al. as applied to claim 6 above, and further in view of Swenson et al. (U.S. Patent No. 5,541,921).

41. Referring to claim 34, Suprenant et al. disclose the use of an interface for accessing the TDM bus such as that in U.S. Patent No. 5,541,921 to Swenson et al. (see column 8, lines 46-54). The invention of Swenson et al. teaches the use of a plurality of buffers (see Swenson et al., Fig. 6), which are coupled with each of the other interface cards across the TDM bus as shown in Fig. 3 of Surprenant et al. Swenson et al. further teach that each of their buffers corresponds to a network flow (IN1, IN2, see Fig. 6). Since the invention of Suprenant et al. is designed to facilitate communication by the cards with one another across the TDM bus, these network flows would thus correspond to the other remote cards to which the interface card is coupled across the TDM bus.

42. Claims 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Surprenant et al. (U.S. Patent No. 6,266,341).

43. Referring to claim 38, Surprenant et al. fail to expressly disclose that the second protocol comprises Internet Protocol (IP). However, Surprenant et al. do disclose the use of "other WAN-type network services as determined by the particular office work environment" (see column 9, lines 1-3). IP is an extremely common WAN-type network service in many office work environments. A person with skill in the art would have recognized this. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of IP as a network traffic protocol in the office communications system of Surprenant et al. to achieve the advantage of making it compatible with a greater number of office work environments.

44. Referring to claim 39, Surprenant et al. disclose that the ingress interface cards comprise conversion circuitry to convert the one or more channels of data according to a time division multiplexed (TDM) protocol and one or more channels of data according to a second protocol to the single format (see column 8, lines 32-58, which discloses that the Switch/MUX card requires multiplexing circuitry to access the bus. Although Surprenant et al. do not explicitly disclose it, one skilled in the art would have recognized that it would have been obvious to provide all the cards connected to the TDM bus with such circuitry to enable each of them to communicate over the TDM bus).

45. Referring to claim 40, Surprenant et al. disclose that the egress interface cards comprise conversion circuitry to convert the one or more channels of data according to the single format to the time division multiplexed (TDM) protocol and/or the second protocol (see column 8, lines 32-58, which discloses that the Switch/MUX card requires multiplexing circuitry to access the bus. Although Surprenant et al. do not explicitly disclose it, one skilled in the art would have

recognized that it would have been obvious to provide all the cards connected to the TDM bus with such circuitry to enable each of them to communicate over the TDM bus).

Response to Arguments

1. Applicant has argued that Surprenant et al. teach away from a backplane using a single format. Although the examiner concedes that the apparatus of Surprenant et al. contains a plurality of buses, the examiner has relied on a single bus (TDM Bus, see Figure 3, #78) in making his rejection. The other buses are therefore irrelevant as they have not been relied on as a basis for rejection of the claims. Furthermore, the TDM bus cited does use a single protocol (see column 8, lines 35-44, which describes that the data are transmitted in TDM frames).

2. Applicant has argued that the cited references cannot be combined to teach or suggest transmitting data received according to multiple protocols over a backplane using a single protocol. However, Surprenant et al. teach just such a limitation. Figure 3 shows a plurality of cards (POT, T-1, Wireless, ATM, #82) connected to a backplane (TDM Bus, #78) wherein the backplane uses a single protocol (see column 8, lines 35-44).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J Molinari whose telephone number is (703) 305-5742. The examiner can normally be reached on Monday-Friday 9am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703) 308-6602. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Michael Joseph Molinari

ALPUS H. HSU
PRIMARY EXAMINER